

Biological Oceanography

OCS 4550

Spring 2019 – Tu/Th, 12:00 noon – 1:20 pm
1216 Patrick Taylor Hall

The purpose of this course is to provide students with an overview of concepts in biological oceanography. This includes discussion of the diversity of marine life, their spatial and temporal distribution, their effects on biogeochemical cycles, and the methodology used to investigate each of these topics.

Course Learning Objectives:

- 1) Demonstrate knowledge of a broad survey of the discipline, including the methodology and underlying principles that govern biological oceanography.
- 2) Demonstrate the ability to read and discuss scientific literature related to biological oceanography.

Instructor:

Dr. Jennifer R. Brum

office: 2201 Energy, Coast and Environment Building
email: jbrum1@lsu.edu

Office hours:

I have no officially scheduled office hours. BUT, I am available whenever you would like to discuss anything about the course! This can be after class, or you can talk to me or send me an email so we can schedule a time when we can meet.

Communication:

The best way to contact me about anything is through email (jbrum1@lsu.edu).

Textbook:

There is no assigned textbook for this course. Scientific papers will be posted on Moodle as the reading material for most lectures.

If you want to purchase a book, you may be interested in *Biological Oceanography* by Charles B. Miller and Patricia A. Wheeler, 2012, 2nd edition.

Lectures:

- Assigned reading will be posted to Moodle 1 week prior to each lecture.
- Figures and images from each lecture (as PowerPoint and PDF files) will be posted to Moodle at least 1 day prior to the lecture.
- Students are expected to take their own notes during each lecture. (See note on Disability Services below).

Grading:

Overview:

- 3 Exams = 75% of the student's final grade (25% each)
- 4 In-class Discussions = 25% of the student's final grade (6.25% each)
- Failure to attend the full class period with a guest lecturer will result in the deduction of 1 percentage point from the student's final grade.
- Assigned grades for all graded items will be posted to Moodle within 1 week of the submission of the graded item or in-class discussion (except in the case of unforeseen circumstances).

Midterm Exams:

- There will be 2 midterm exams during the semester, each worth 25% of the student's final grade.
- These midterm exams are take-home, and all available resources may be used to complete them except for help from the instructor.
- The midterm exams will be due at or before the start of class, 1 week after they are distributed (see Course Schedule below).

Final Exam:

- The final exam will take place at the scheduled time during final exam week (see Course Schedule below), and will be worth 25% of the student's final grade.
- The final exam will consist of an 8-minute presentation describing a proposed research project, with 2 minutes for audience questions following the presentation.
- Topics for the proposed research may include anything covered within the course.
- The presentations may be given by groups of up to 3 students. Students will sign up for groups prior to the final exam presentation.
- Scheduled class times during the week prior to the final exam week will be used for students to work on their proposal presentations.

In-class Discussions:

- There will be 4 in-class discussions during the semester (see Course Schedule below), and each will be worth 6.25% of the student's final grade.
- Discussions will be based on assigned reading of topics.
- The loose structure of in-class discussions is as follows:
 - o 30 minutes in assigned groups to prepare for the discussion based on questions posed by the instructor at the start of class
 - o 40 minutes for groups to present their answers to posed questions regarding the discussion topics (generally using either a 1-slide presentation or a chalk talk), and for the class to discuss these topics
 - o 10 minute wrap-up of discussion led by the instructor, with participation from the students
- Grading will be based on student preparation for the discussion and student participation during the discussion.

Guest Lectures:

- Failure to attend the full class period with a guest lecturer will result in the deduction of 1 percentage point from the student's final grade.

Grading Scale:

- Posted midterm and final grades will be rounded to the nearest whole number.
- Letter grades will be defined as follows:

97-100	A+	73 to 76	C
93 to 96	A	70 to 72	C-
90 to 92	A-	67 to 69	D+
87 to 89	B+	63 to 66	D
83 to 86	B	60 to 62	D-
80 to 82	B-	0 to 59	F
77 to 79	C+		

Makeup Policy:

The makeup policy for this course is based upon communication between the student and the instructor. Students are responsible for communicating the reasons for any absence for any graded portion of this class within the time frames given below. If the student has any questions about a scheduled or unscheduled absence, they are expected to communicate with the instructor in a timely fashion, either in-person or via email, regarding the absence.

- Midterm Exams:

- In the event of a *scheduled* student absence on the date of the deadline for submission (e.g., travel for student organizations, court appearances including jury duty, etc.):
 - The student will inform the instructor at least 1 week prior to the scheduled absence.
 - The student will provide official documentation describing the reason for the absence.
 - The student may submit the take-home exam prior to the scheduled deadline for submission either in-person or via email.
- In the event of an *unscheduled* student absence on the date of the deadline for submission (e.g., illness, traffic accident, etc.):
 - The student will contact the instructor via email within 24 hours.
 - The student will provide official documentation describing the reason for the absence.
 - The student will be provided additional time to submit the take-home exam.

- Final Exam:

- In the event of a *scheduled* student absence on the date of the deadline for the final exam (e.g., travel for student organizations, court appearances including jury duty, etc.):
 - The student will inform the instructor at least 1 week prior to the scheduled absence.
 - The student will provide official documentation describing the reason for the absence.

- The student will present their final exam presentation to the instructor in-person at an alternate time to be scheduled by the student and instructor.
 - In the event of an *unscheduled* student absence on the date of the deadline for submission (e.g., illness, traffic accident, etc.):
 - The student will contact the instructor via email within 24 hours.
 - The student will provide official documentation describing the reason for the absence.
 - The student will present their final exam presentation to the instructor in-person at an alternate time to be scheduled by the student and instructor.
- In-class Discussions and Guest Lectures:**
- In the event of a *scheduled* student absence on the date of the in-class discussion or guest lecture (e.g., travel for student organizations, court appearances including jury duty, etc.):
 - The student will inform the instructor at least 1 week prior to the scheduled absence.
 - The student will provide official documentation describing the reason for the absence.
 - The grade for the in-class discussion will be removed from the calculation of the student's grade for the course; the penalty for missing a guest lecture will be waived.
 - In the event of an *unscheduled* student absence on the date of the in-class discussion or guest lecture (e.g., illness, traffic accident, etc.):
 - The student will contact the instructor via email within 24 hours.
 - The student will provide official documentation describing the reason for the absence.
 - The grade for the in-class discussion will be removed from the calculation of the student's grade for the course; the penalty for missing a guest lecture will be waived.

Cheating and Plagiarism Policy:

Cheating or plagiarism will not be tolerated. It is recommended that students review the *LSU Student Handbook* and *Code of Conduct*. These documents can be found on the Dean of Students webpage. Students suspected of cheating or plagiarism will be referred to the Dean of Students as per requirements in the *LSU Student Handbook*.

Students who violate the LSU Code of Student Conduct (<https://saa.lsu.edu/code>) will be referred to Student Advocacy and Accountability. Academic misconduct at LSU includes but is not limited to, cheating, plagiarism, collusion, falsifying academic records, and any act designed to give an unfair academic advantage to the student. The outcome will range from failing the assignment to failing the class. Suspension from LSU is the common outcome for multiple academic violations.

Disability Services:

Louisiana State University is committed to providing reasonable accommodations for all persons with disabilities. If you have a disability for which you may require accommodations you are required to register with Disability Services (115 Johnston Hall; (225)578-5919). Students that receive accommodation letters, please meet with the instructor to discuss the provisions of those accommodations as soon as possible.

Course Schedule:

The course schedule is subject to change. Any changes to the course schedule will be communicated to the students in class. Please also see the course Moodle page for updated course schedules.

Day	Date	Exams / Discussions / Guest Lectures	Topic
Thursday	10-Jan		Introduction & Overview of concepts
Tuesday	15-Jan		General concepts
Thursday	17-Jan	Discussion 1	Discussion 1 – How to read a scientific paper; Goals of biological oceanography
Tuesday	22-Jan		Microbes 1
Thursday	24-Jan		Microbes 2
Tuesday	29-Jan		Phytoplankton 1
Thursday	31-Jan		Phytoplankton 2
Tuesday	5-Feb		Zooplankton
Thursday	7-Feb		Larger animals
Tuesday	12-Feb		Biological carbon pump 1
Thursday	14-Feb		Biological carbon pump 2
Tuesday	19-Feb	Discussion 2; Midterm Exam 1 Distributed	Discussion 2 – Methods
Thursday	21-Feb		Open ocean – surface
Tuesday	26-Feb	Midterm Exam 1 DUE	Open ocean – mid-water
Thursday	28-Feb		Benthos 1
Tuesday	5-Mar		No Class – Mardi Gras Holiday
Thursday	7-Mar		Go over Midterm Exam 1; Benthos 2
Tuesday	12-Mar		Benthos 3
Thursday	14-Mar		Polar oceans
Tuesday	19-Mar	Discussion 3	Discussion 3 – Bioengineering and Geoengineering
Thursday	21-Mar		Upwelling zones & River plumes
Tuesday	26-Mar		Symbioses
Thursday	28-Mar	Guest Lecture	Estuaries and vascular plants (Dr. Tracy Quirk)
Tuesday	2-Apr		Go over final exam requirements; Overview of concepts
Thursday	4-Apr	Discussion 4; Midterm Exam 2 Distributed	Discussion 4 – Oil spills and dispersant
Tuesday	9-Apr	Guest Lecture	Fisheries (Dr. Stephen Midway)
Thursday	11-Apr	Midterm Exam 2 DUE; Guest Lecture	Modeling (Dr. Cassandra Glaspie)
Tuesday	16-Apr		No Class – Spring Break
Thursday	18-Apr		No Class – Spring Break
Tuesday	23-Apr		Go over Midterm Exam 2; Work on final exam presentations
Thursday	25-Apr		Work on final exam presentations
Tuesday	30-Apr	Final Exam (5:30 – 7:30 pm)	Final exam presentations